

2814

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. Of: YOKOYAMA
Serial No.: 08/992,767
Filed: December 17, 1997
For: CONTACT STRUCTURE IN SEMICONDUCTOR...
Group: 2814
Examiner: D. WILLE

DOCKET: NEC 19654 CON

Assistant Commissioner of Patents and Trademarks
Washington, D.C. 20231

AMENDMENT F

Dear Sir:

This amendment is being filed in response to the Official Action mailed April 1, 2002.

In this latest Action, the Examiner withdraws the previous Final Rejection, and now cites a new primary reference, Kuwajima in place of Tsoi et al., which he combines with Roberts et al., McDavid, Miller et al., and Kim et al., all previously cited, to continue to reject the claims as obvious from the art. While Applicant appreciates a rigorous examination to be assured of a valid and enforceable patent, Applicant also wishes to register a strong objection to the citation of Kuwajima at this stage of the prosecution. The Examiner has now conducted a plurality of prior art searches, several times introducing a new and different primary reference. The Examiner has twice Finally Rejected the subject application, only to withdraw the finality after Applicant filed his Appeal Brief. Even assuming arguendo some of the earlier searches were necessitated by claim changes made by Applicant, this latest search was not necessitated by changes in the claims, since Applicant has not changed the claims since responding to the Office Action of January 8, 2001!

#27/Response
masha
7/24/02

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In the present Action, the Examiner cites Kuwajima as teaching that "for semiconductor devices it is necessary to form different size vias for contacts.... to meet requirements for material removal related to the nonuniformity of the surface, the film thickness is selected to provide complete filling of the small via and covering the sidewalls of the large via". Unlike Tsoi et al., the primary reference cited in the earlier prosecution, Kuwajima appears to recognize coverage problems in the case of semiconductor devices having different size vias. However, Kuwajima's solution to such coverage problems is to control respective aperture sizes of the via holes based on a relationship between aspect ratios, hole diameters and thickness of insulating film. As in the case of the admitted prior art, and, for example, Tsoi et al. the previous primary reference, the contact holes in Kuwajima are constant diameter throughout their heights. Thus, Kuwajima is really no different from the primary art previously applied by the Examiner other than the fact that Kuwajima appears to acknowledge the existence of coverage problems in semiconductor devices having different size vias for contacts. However, Kuwajima approaches the coverage problem in a very different way, namely, by employing different size contact holes according to a formula. Since Kuwajima proposes a solution to coverage problems with different size holes, there would be no reason for one skilled in the art to even look to the secondary references as suggested by the Examiner. Indeed, it would be both unnecessary and counterindicated to do so. Thus, the new rejection of the claims as obvious from the art is in error.

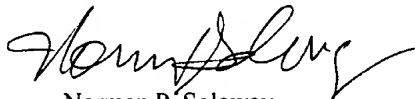
Having dealt with all the objections raised by the Examiner, the application is believed to be in order for allowance. Early and favorable Action are respectfully requested.

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In the event there are any fee deficiencies or additional fees are payable, please charge them (or credit any overpayment) to our deposit account number 08-1391.

Respectfully submitted,

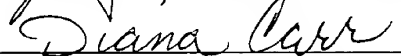


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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Assistant Commissioner of Patents and Trademarks, Washington, D.C. 20231 on July 1, 2002, at Tucson, Arizona.

By



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